



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,546	03/15/2004	Norbert Lichtenstein	ABACP0108US	1330

43076 7590 10/05/2005

MARK D. SARALINO (GENERAL)
RENNER, OTTO, BOISSELLE & SKLAR, LLP
1621 EUCLID AVENUE, NINETEENTH FLOOR
CLEVELAND, OH 44115-2191

EXAMINER

VU, JIMMY T

ART UNIT	PAPER NUMBER
----------	--------------

2821

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/800,546

Applicant(s)

LICHTENSTEIN ET AL

Examiner

Jimmy T. Vu

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9, 18 and 21-24 is/are rejected.
- 7) ☒ Claim(s) 4-8, 10-17, 19, 20 and 25-28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/15/04, 12/22/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

The references listed on the information disclosure statement submitted on 03/15/2004 and 12/22/2004 have been considered.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 9, 18 and 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Thornton (U.S. Patent number 4,731,789 cited by Applicant).

Regarding claim 1, Thornton discloses a high power semiconductor laser (10) for generating a laser beam of a given wavelength, said laser comprising:

an active region (16) comprising a gain region and a waveguide (Fig. 1);

one or more cladding layers (14, 18, 21);

characterized by

a large optical superlattice structure (LOSL) (20) in one of said cladding layers, said superlattice structure being or comprising at least two superlattice layers differing in their respective refractive indices, each said layer having a thickness larger than the de Broglie wavelength of the electrons in said active region (Fig. 1, col. 3, lines 40-68, col. 4, lines 1-68).

Regarding claim 2, Thornton discloses the laser wherein each said superlattice layer has a thickness of at least 20 nm, preferably between 20 nm and 500nm (Fig. 1, col. 3, lines 40-42).

Regarding claim 3, Thornton discloses the laser wherein the superlattice structure comprises at least two alternately stacked superlattice layers which in their totality result in a predetermined overall refractive index of said superlattice structure (Fig. 1).

Regarding claim 9, Thornton discloses the laser wherein a plurality of superlattice layers with one of the refractive indices is provided and said superlattice layers vary in their thicknesses (Fig. 1).

Regarding claim 18, Thornton discloses the laser wherein dimensions and/or materials of the two superlattice layers are approximately the same (Fig. 1).

Regarding claim 21, Thornton discloses the laser wherein one of the superlattice layers exhibits a refractive index of at least approximately the same magnitude as one of the cladding layers (Fig. 1).

Regarding claim 22, Thornton discloses the laser wherein one of the superlattice layers exhibits lattice parameters at least approximately equal to the lattice parameter of an adjacent cladding layer (Fig. 1).

Regarding claim 23, Thornton discloses the laser wherein the superlattice layer adjacent the active region exhibits the lower of the at least two refractive indices (Fig. 1).

Regarding claim 24, Thornton discloses the laser wherein the superlattice layer adjacent the active region exhibits a refractive index of the same magnitude as one of the cladding layers (Fig. 1).

Allowable Subject Matter

3. Claims 4-8, 11-17, 19-20 and 25-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the prior art teaches the laser wherein the different refractive indices are effected by different material composition and/or different doping levels and/or different dimensions of the superlattice layer and wherein the different refractive indices are effected by different thicknesses of the superlattice layer.

Conclusion


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy T Vu whose telephone number is (571) 272-1832. The examiner can normally be reached on M - F: 9 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2800.

Jimmy Vu

September 20, 2005


WILSON LEE
PRIMARY EXAMINER